

## Analyses of associations between QOL and frailty from individual studies

Study details	Numbers of participants and QOL scores by frailty category <sup>a</sup>			Reported analyses of associations between frailty and QOL	Covariates adjusted for
	Fit <sup>†</sup>	Pre-frail <sup>‡</sup>	Frail <sup>§</sup>		
<p>Ament 2014</p> <p>N=334</p> <p>Frailty: Groningen Frailty indicator</p> <p>QoL: Single item general QOL assessment (unreferenced)</p>	n=0 <sup>b</sup>	n=0 <sup>b</sup>	n=334 (100%)	Analyses only conducted for domains of frailty	Age, sex, baseline quality of life, multimorbidity
<p>CSHA</p> <p>N=5,703</p> <p>Frailty: Cumulative Deficit Model</p> <p>QoL: Ryff Psychological Well-Being scale</p>	n=4677 (82%)	n=0 <sup>c</sup>	n=1026 (18%)	<p>Baseline Pearson's r = 0.23, P &lt; 0.001</p> <p>Linear regression (QOL dependent)</p> <p>Coefficient for frailty (95% CI) p-value:</p> <p>Ryff psychological well-being index</p> <p>Total 0.29 (0.22 to 0.36) ***</p> <p>- Autonomy 0.012 (-0.0069 to 0.031) -</p> <p>- Mastery 0.12 (0.099 to 0.13) ***</p> <p>- Acceptance 0.071 (0.049 to 0.092) ***</p> <p>- Purpose -0.002 (-0.028 to 0.023) -</p> <p>- Relations 0.047 (0.024 to 0.069) ***</p> <p>- Growth 0.057 (0.033 to 0.081) ***</p> <p>AUC = 0.59 [95% confidence interval (CI) 0.54 to 0.64], ***</p> <p>logistic regression model, (five-year frailty dependent)</p> <p>Baseline Ryff psychological well-being scale did not significantly predict frailty [p = 0.216] (n=557)</p> <p>Mediation model while covarying for other pertinent factors, PWB -&gt; Frailty, and via Depression (n = 557):</p> <p>Coefficient (95% CI), p</p> <p>Total -0.186 (-0.347 to -0.025) *</p> <p>Direct -0.108 (-0.278 to 0.062) -</p> <p>Indirect -0.074 (-0.135 to -0.023) **</p> <p>indicating a full mediation relationship.</p>	Regression analysis adjusted for age, gender, education, mental health, and 3MS score.

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Bilotta 2010	n=72 (30%)		n=89 (37%)	n=78 (33%)		
N=239	OPQOL, mean (SD)				Between group differences:	
Frailty: Study of	total	125.9 (13.2)	115.6 (13.9)	107.4 (12.6)	*	
Osteoporotic	- life overall	14.9 (2.4)	13.0 (2.8)	12.0 (3.2)	*	
Fractures criteria	- health	12.9 (2.6)	10.5 (2.8)	8.2 (2.8)	*	
	- social	17.8 (3.2)	17.2 (3.3)	17.2 (3.5)	-	
QoL: Older	- independence	14.2 (2.9)	12.4 (3.0)	10.7 (2.8)	*	
People's Quality	- home	16.7 (2.2)	15.9 (2.4)	15.3 (1.8)	*	
of Life	- psychological	15.1 (2.5)	13.7 (2.9)	12.6 (2.6)	*	
questionnaire	- finances	13.5 (3.2)	13.1 (3.0)	12.8 (3.3)	-	
	- activities	20.8 (3.5)	19.7 (3.1)	18.7 (2.5)	*	
					Linear regression analysis, OPQOL total as dependent variable, Being frail unstandardized coefficient (95% CI): -6.36 (-10.37 to -2.35) *	age, basic ADLs instrumental ADLs, MMSE, depression, CIRS m, fell in past year, number of drugs
Chang 2012	n=117 (31%)		n=235 (63%)	n=22 (6%)		
N=374	SF-36, mean(SD)				ANOVA:	
Frailty: Fried	Physical function	83.3 (18.7)	77.6 (20.2)	54.8 (26.16)	***	
QoL: SF-36	Role physical	75.9 (40.7)	77.1 (39.0)	45.5 (48.6)	**	
	Bodily pain	80.3 (20.5)	77.1 (21.6)	59.2 (17.4)	***	
	General health	60.3 (11.5)	60.1 (15.2)	48.7 (18.9)	**	
	Vitality	77.9 (16.4)	67.8 (17.7)	55.9 (19.4)	***	
	Social functioning	91.7 (13.4)	87.7 (14.3)	67.6 (21.7)	***	
	Role emotional	92.6 (24.8)	87.4 (30.3)	71.2 (44.0)	**	
	Mental health	84.2 (14.2)	76.8 (13.9)	67.5 (17.3)	***	
	PCS	48.6 (8.2)	48.4 (8.4)	39.5 (7.8)	***	
	MCS	56.8 (7.7)	52.0 (8.8)	43.3 (12.3)	***	
					Multivariate linear regression:- PCS as dependent variable, $\beta$ (95% CI): Prefrail 1.461 (-0.499 to 3.421) Frail -6.289** (-10.398 to -2.181) R <sup>2</sup> = 0.131	age, number of co-morbidities, living alone, falls in the previous year, arthritis, peptic ulcer disease, and depression
					MCS as dependent variable, $\beta$ (95% CI): Prefrail -3.772*** (-5.731 to -1.813) Frail -9.436*** (-13.543 to -5.329) R <sup>2</sup> = 0.248	

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		Fit <sup>†</sup>	Pre-frail <sup>‡</sup>	Frail <sup>§</sup>			
Chang 2016	n=72 (30%)		n=89 (37%)	n=78 (33%)	Between group differences (Chi-squared test): p-value; Scheffe		Regression adjusted for sex, age, education, employment, has income, lives alone, number of chronic diseases, fell last year, fracture last year, smoked ever, consumed alcohol last month, self-perceived health, self-perceived happiness, BMI, waist circumference, SBP, DBP, BMD, grip strength
N=239	WHOQOL-BREF, mean (SD):				***;	†>§, ‡; †>§	
Frailty: Study of	Physical	3.65 (0.49)	3.26 (0.50)	2.74 (0.54)	***;	†>§; †>§	
Osteoporotic	Psychological	3.66 (0.42)	3.61 (0.39)	2.95 (0.52)	***;	†>§; †>§	
Fractures criteria	Social	3.58 (0.44)	3.53 (0.39)	3.23 (0.42)	***;	†>§; †>§	
	Environment	3.64 (0.35)	3.61 (0.29)	3.32 (0.38)	***;	†>§; †>§	
QoL: WHOQOL-BREF					Multiple linear regressions; QoL subscales dependent. Independent binary frailty variable B coefficients (95% CIs):-		
					Physical	-0.01 (-0.15 to 0.12)	
					Psychological	-0.13 (-0.28 to 0.01)	
					Social	-0.12 (-0.28 to 0.03)	
					Environment	-0.16 (-0.30 to -0.02)*	
Coelho 2015	n=39 (15%)		n=121 (48%)	n=92 (37%)	Correlation coefficient (r), coefficient of determination (R <sup>2</sup> ), p-value:		
N=252	QoL scores not reported by frailty category				WHOQOL-OLD and TFI,	-0.65, 42.1%, ***	
Frailty: Tilburg					EUROHIS-QOL-8 and TFI,	-0.62, 38.7%, ***	
QoL: WHOQOL-OLD and EUROHIS-QOL-8							
ELSA (Gale 2014)	n=1186 (46%)		n=1058 (41%)	n=313 (12%)	Differences between groups (ANOVA, Chi-squared test): p-value		
N=2,557	CASP-19, mean (SD):				† and ‡;	‡ and §	
Frailty:	Total	46.0 (7.63)	42.8 (7.96)	38.0 (7.65)	***	***	
Cumulative Deficit Model	Hedonic <sup>d</sup>	10.6 (1.67)	10.1 (1.66)	9.34 (1.80)	***	***	
QoL: CASP-19	Eudaimonic <sup>e</sup>	35.3 (6.47)	32.7 (6.79)	28.6 (6.22)	***	***	
					Multinomial logistic regressions:-		All regression models are adjusted for: (a) age, sex and baseline value of the dependent variable (i.e. frailty status or psychological well-being).  (b) Fully adjusted models additionally include: household wealth, smoking status, number of chronic physical diseases, BMI, depressive symptom score, cognitive function.
					RR (95% CI), for incident (pre-)frailty (model a):-	Frailty	
						Pre-frailty	
					CASP-19 Total	0.69 (0.63 to 0.77)	
					- Hedonic <sup>d</sup>	0.75 (0.68 to 0.83)	
					- Eudaimonic <sup>e</sup>	0.70 (0.63 to 0.78)	
					RR (95% CI), for incident (pre-)frailty (model b, fully adjusted):-	Frailty	
						Pre-frailty	
					Total score	0.79 (0.71 to 0.89)	
					- Hedonic <sup>d</sup>	0.83 (0.74 to 0.92)	
					- Eudaimonic <sup>e</sup>	0.76 (0.72 to 0.90)	
					Four-year PWB total score (95% CI):		
					Incidence of	model a	
					pre-frailty	-1.58 (-0.93 to -2.22)	
					frailty	-3.70 (-1.99 to -5.41)	
						model b, fully adjusted	
					Also significant relative declines in hedonic and eudaimonic scores for incidence of pre-frailty and frailty (data not shown).		

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	Fit <sup>†</sup>	Pre-frail <sup>‡</sup>	Frail <sup>§</sup>		
ELSA (Hubbard 2014) N=3,206 Frailty: Cumulative Deficit Model QoL: CASP-19	Very fit: n=1879 (59%); Well: n =343 (11%) CASP-19 total, mean (95% CI) Very fit: 46.4 (46.0 to 46.7); Well: 42.3 (41.6 to 43.1)	Vulnerable: n=556 (17%) 39.8 (39.1 to 40.4)	Frail: n=428 (13%) 33.6 (32.7 to 34.5)	Pearson correlation coefficient (r): CASP-19: -0.58  Linear regressions, CASP-19 dependent: Model 1: Frailty B coefficient = -35.3 (-38.0 to -32.5); R <sup>2</sup> = 0.362  Model 2: Frailty B=-34.4 (-37.1 to -31.6); R <sup>2</sup> = 0.376	Both models: age, sex, smoking, and level of physical activity. Model 2 also: net financial wealth and net income. Models weighted to compensate for survey non-response and to take into account the survey's complex clustering and stratification.
Freitag 2016 N=210 Frailty: Tilburg QoL: SF-12 and EUROHIS-8	n=123 QoL scores not reported by frailty category	n=0 <sup>c</sup>	n=87	Correlation coefficients: EUROHIS-8: -0.562 *** SF-12 PCS: -0.589 *** SF-12 MCS: -0.450 ***	None
Gobbens 2012 N=479 (in 2008) N=336 (in 2009) N=266 (in 2010) Frailty: Tilburg QoL: WHOQOL- BREF	Number of participants not reported by frailty category QoL scores not reported by frailty category			Correlation coefficients with TFI in 2008 (baseline): 2008 (baseline)      2010 (+2 years) Physical      -.72***      -.68*** Psychological      -.68***      -.59*** Social relationships      -.39***      -.37*** Environmental      -.54***      -.45***  Sequential regression analyses, 2010 QoL subscales dependent, 2008 independent variables: R <sup>2</sup> increase for addition of frailty domains to model; R <sup>2</sup> for overall model: Physical      .037***;      .64*** Psychological      .044***;      .56*** Social relationships      .046***;      .42*** Environmental      .018*;      .56***	baseline of the QoL variable, gender, age, marital status, education, income, lifestyle, life events, chronic diseases
Gobbens 2013 N=1,031 Frailty: Tilburg QoL: WHOQOL- BREF	n=745 (72%) WHOQOL-BREF, mean(SD): Physical      16.68 (1.82) Psychological      15.06 (1.73) Social      15.08 (2.29) Environment      16.23 (1.78)	n=0 <sup>c</sup>	n=286 (28%) 13.61 (2.35) 13.32 (1.86) 13.11 (2.57) 14.58 (2.04)		

Study details	Numbers of participants and QoL scores by frailty category <sup>a</sup>			Reported analyses of associations between frailty and QoL	Covariates adjusted for	
	Fit <sup>†</sup>	Pre-frail <sup>‡</sup>	Frail <sup>§</sup>			
Jurschik 2012	n=227 (43%)	n=246 (47%)	n=50 (10%)			
N=640	SF-36 [including pre-frail - n=473 (90%)], mean (SD)			Between group differences (Student's t-test), p-value:	In logistic regression: age, gender, marital status, alcohol use, comorbidity, cognitive status, basic disability, instrumental disability, depressive symptoms, vision problems, malnutrition, self-perceived health, polypharmacy, falls in the last year, social relations and SF-36 scales except bodily pain	
Frailty: Fried	Physical function 68.40 (26.3)		24.29 (24.4)	***		
QoL: SF-36	Role physical 82.75 (32.5)		42.35 (46.3)	*** <sup>¶</sup>		
	Bodily pain 40.94 (15.8)		42.04 (19.7)	-		
	General health 68.40 (26.3)		24.29 (24.4)	***		
	Vitality 58.03 (17.6)		40.82 (18.5)	***		
	Social functioning 87.45 (21.3)		59.64 (23.9) <sup>†</sup>	***		
	Role emotional 87.72 (29.8)		54.42 (48.4)	***		
	Mental health 73.86 (22.2)		54.64 (29.7)	***		
				Logistic regression: p>.05 for each SF-36 domain <sup>h</sup>		
Kanauchi 2008	n=77 (76%)	n=0 <sup>c</sup>	n=24 (24%)			
N=101	WHOQOL-BREF, mean ± SE:			Between group differences (ANCOVA), p-value:		Adjusting for factors such as age, creatinine clearance and depressed mood
Frailty: Hebrew Rehabilitation Center for Aged Vulnerability Index	Physical 3.65 ± 0.06		3.07 ± 0.12	***		
QoL: WHOQOL-BREF	Psychological 3.61 ± 0.06		3.11 ± 0.12	***		
	Social 3.30 ± 0.07		3.14 ± 0.14	-		
	Environment 3.59 ± 0.04		3.08 ± 0.12	***		
Lahousse 2014	n=1,216 (43%)	n=1,454 (51%)	n=163 (6%)	logistic regression, QoL as dependent variable	age and sex	
N=2,833	EQ-VAS, median [IQR]			frail vs. non-frail and intermediate frail group combined:		
Frailty: Fried	80 [15]	80 [15]	70 [20]	***		
QoL: EuroQol Visual analogue scale (EQ-VAS)						
Lenardt 2014	n=49 (24%)	n=115 (57%)	n=39 (19%)	Between group differences (Kruskall-Wallis H), p-value; post-hoc by-group significance:	none	
N=203	SF-36, mean (SD)					
Frailty: Fried	Physical function 87.7 (16.9)	73.2 (24.5)	61.1 (27.9)	***, †>‡>§		
QoL: SF-36	Role physical 96.4 (16.1)	80.4 (36.2)	71.1 (41.1)	***, †>(‡,§)		
	Bodily pain 78.9 (24.6)	62.5 (31.8)	60.4 (30.7)	***, †>(‡,§)		
	General health 76.0 (22.5)	73.0 (22.7)	71.4 (17.0)	-		
	Vitality 85.8 (17.2)	75.9 (22.4)	75.0 (24.4)	*, †>(‡,§)		
	Social functioning 89.9 (24.6)	88.6 (25.3)	85.6 (25.6)	-		
	Role emotional 89.5 (30.8)	87.9 (31.1)	81.1 (36.5)	-		
	Mental health 85.3 (16.7)	77.9 (23.2)	76.4 (23.4)	-		

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	Fit <sup>†</sup>	Pre-frail <sup>‡</sup>	Frail <sup>§</sup>		
Lin 2011	n=426 (46%)	n=415 (44%)	n=92 (10%)		
N=903	SF-36, adjusted mean ± SE			Between frailty categories difference (ANCOVA):	
Frailty: Fried	Physical function 85.60 ± 1.32	80.62 ± 1.25	62.74 ± 1.96	F value; Multiple post-hoc comparison	Age (years), Gender, education, money use, You see relatives/friends when you want, Visual capacity, hearing capacity, regular exercise, hypertension, heart disease, Hyperuricemia, Arthritis, Cataract, fall history, pain, sleep disorder
QoL: SF-36	Role physical 93.95 ± 2.67	83.26 ± 2.52	78.16 ± 3.96	56.46***; †>‡>§	
	Bodily pain 83.49 ± 1.34	81.23 ± 1.26	74.29 ± 1.99	12.13***; †>(‡,§)	
	General health 66.96 ± 1.57	60.55 ± 1.48	49.22 ± 2.33	8.89***; †>‡>§	
	Vitality 77.69 ± 1.51	72.13 ± 1.42	63.15 ± 2.24	25.95***; †>‡>§	
	Social functioning 95.94 ± 1.21	91.57 ± 1.14	80.17 ± 1.79	19.45***; †>‡>§	
	Role emotional 94.38 ± 2.21	87.28 ± 2.08	85.90 ± 3.28	32.45***; †>‡>§	
	Mental health 82.31 ± 1.33	79.69 ± 1.25	73.67 ± 1.97	7.01***; †>(‡,§)	
	PCS 50.48 ± 0.53	48.01 ± 0.50	42.56 ± 0.79	8.17***; †>‡>§	
	MCS 56.22 ± 0.62	54.47 ± 0.59	52.64 ± 0.92	43.61***; †>‡>§	
				8.10***; †>(‡,§)	
				Multivariate logistic regression. Odds ratio of "successful aging" (SF-36 MCS AND PCS score in the highest tertile: PCS>=53.00; MCS>=59.28)	
				Pre-frail vs. Fit 0.45 (0.24 to 0.84)	
				Frail vs. Fit 0.14 (0.02 to 1.13)	

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Masel 2009	n=264 (26%)	n=547 (54%)	n=200 (20%)		
N=1,011	SF-36, mean (SD)			Between frailty categories difference (ANOVA):	
Frailty: Fried	Physical function 64.3 (27.7)	44.5 (30.5)	23.3 (24.2)	*	
QoL: SF-36	Role physical 80.6 (37.0)	54.0 (47.1)	31.4 (43.2)	*	
	Bodily pain 77.2 (24.8)	64.1 (29.5)	49.7 (31.0)	*	
	General health 68.3 (17.3)	57.7 (20.4)	43.5 (20.9)	*	
	Vitality 72.9 (18.4)	60.6 (22.1)	44.6 (22.6)	*	
	Social functioning 88.6 (20.7)	71.6 (30.5)	47.8 (33.8)	*	
	Role emotional 94.6 (20.9)	78.1 (40.2)	52.8 (48.3)	*	
	Mental health 84.8 (14.9)	78.0 (19.6)	66.2 (21.4)	*	
	PCS 44.1 (10.4)	36.2 (11.9)	29.1 (9.9)	*	
	MCS 58.4 (6.3)	54.5 (10.7)	46.9 (12.7)	*	
				Multiple linear regressions, QoL subscales as dependent variables.	Multiple linear regression adjusted for age, sex, education, marital status, financial strain, arthritis, chronic illnesses, and BMI
				pre-frail $\beta$ ; frail $\beta$	
				Physical function: -0.24 *; -0.44 *	
				Role physical: -0.25 *; -0.38 *	
				Bodily pain: -0.18 *; -0.26 *	
				General health: -0.20 *; -0.41 *	
				Vitality: -0.22 *; -0.45 *	
				Social functioning: -0.24 *; -0.49 *	
				Role emotional: -0.20 *; -0.38 *	
				Mental health: -0.16 *; -0.33 *	
				PCS: -0.26 *; -0.42 *	
				MCS: -0.18 *; -0.40 *	
				Logistic regression, odds ratios for the effect of frailty status on scoring in the lowest quartile of the SF-36 summary scales: pre-frail; frail	Logistic regression adjusted for age, sex, marital status, financial strain, arthritis, chronic illnesses, and BMI
				PCS: 4.03 (1.95, 8.35); 10.58 (4.90, 22.84)	
				MCS: 3.86 (2.07, 7.19); 10.20 (5.19, 20.07)	
Pinto 2016	Number of participants not reported by frailty category			Pearson's correlation -0.175,	
N=2,164	QoL scores not reported by frailty category			ANOVA F 14.117, ***;	
Frailty: Fried				Path analysis, Satisfaction $\leq$ Frailty:	Age, education, number of diseases, depressive symptoms,
QoL: Life satisfaction (unreferenced multi-item)				estimate = -0.186, standard error <sup>1</sup> = 0.081 *	cognitive status, self-rated health
				Standardized Direct Effects = -0.047,	
				Standardized Indirect Effects = -0.025, **	

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Simone 2013  N=95 Frailty: Groningen Frailty Indicator QoL: Satisfaction with Life Scale	n=51 (54%)  Life Satisfaction, mean (SD) 27.94 (4.66)	n=0 <sup>c</sup>	n=44 (46%)  22.76 (6.30)	Between frailty category means: ANOVA F = 20.46, **  Canonical correlation analysis:- "Functional status" latent variable from frailty, social leisure engagement and solitary leisure engagement; "Subjective well being" latent variable from life satisfaction, positive affect and negative affect: Frailty -> Functional status latent variable r=.844 Functional status latent variable <-> Subjective well being latent variable r=.515	In canonical correlation analysis: Functional status latent variable from frailty, social leisure engagement and solitary leisure engagement Subjective well being latent variable from Life satisfaction, positive affect and negative affect
St John 2013  N=988 Frailty: Cumulative Deficit Model QoL: Life Satisfaction terrible-delightful scale	n=1287 (78%)  QoL scores not reported by frailty category	n=0 <sup>c</sup>	n=371 (22%)	Linear regression models for each domain of life satisfaction as dependent variable: B coefficient of frailty at time point 1: Unadjusted; Adjusted Health -0.64 *; -0.63 * Finances -0.15 *; -0.15 * Family -0.28 *; -0.23 * Friendships -0.35 *; -0.27 * Housing -0.25 *; -0.20 * Recreation -0.45 *; -0.40 * Religion -0.19 *; -0.20 * Self-esteem -0.22 *; -0.18 * Transportation -0.31 *; -0.23 * Overall -0.41 *; -0.37 *  Life satisfaction at time point 2 (5 years later) as dependent variable: B coefficient of frailty at time point 1: Unadjusted; Adjusted Health -0.77 *; -0.70 * Finances -0.25 *; -0.21 * Family -0.24 *; -0.19 * Friendships -0.51 *; -0.43 * Housing -0.14; -0.05 Recreation -0.48 *; -0.42 * Religion -0.15 *; -0.18 * Self-esteem -0.18 *; -0.04 Transportation -0.53 *; -0.44 * Overall -0.32 *; -0.27 *	Adjusted models adjusted for age, gender, education, and marital status
Wu 2013  N=699 Frailty: Other QoL: CASP-19	CASP-19, mean (SD) Overall Fit:41.7 (7.0); Well:40.5 (5.8) - Control Fit: 7.4 (1.6); Well: 7.2 (1.3) - Autonomy Fit:11.8 (1.5); Well:11.3 (1.5) - Self-realisation Fit:12.4 (2.9); Well:12.5 (2.5) - Pleasure Fit:10.2 (3.1); Well: 9.5 (2.7)	Vulnerable: n=437 (63%)	Frail: n=17 (2%)	Between frailty category differences (ANOVA): ** ** ** ** **	Not reported

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Yang 2016	Number of participants not reported by frailty category			Linear regression, life satisfaction as dependent variable: frailty index: B -23.85*** 95% CI(-26.67 to -21.03), SE 1.44, $\beta$ -0.46***. Frailty index x Old-old: B = 5.17* 95% CI(1.18 to 9.16), SE = 2.04, $\beta$ = 0.07* R <sup>2</sup> = 35.8%	urban/rural; gender; social vulnerability; old-old vs. Young-old; frailty x old-old
N=1,970 Frailty: Cumulative Deficit Model QoL: Life satisfaction (unreferenced multi-item)	QoL scores not reported by frailty category				

<sup>a</sup> Participants per frailty group are presented as n= number (percentage of whole sample). QoL scores are presented as one of mean (standard deviation [SD]), mean  $\pm$  standard error (SE), mean (95% confidence interval (95%CI)) or median [interquartile range (IQR)] for continuous variables and n= number (percentage of frailty group) for categorical variables.

<sup>b</sup> Only people living with frailty were included.

<sup>c</sup> The study only reported data in two frailty categories: Not frail and Frail. Data for Not frail participants is reported in the Fit (or robust) column.

<sup>d</sup> The Pleasure scale of the CASP-19

<sup>e</sup> The Control, Autonomy and Self-realisation scales of the CASP-19

<sup>f</sup> In Jurschik 2012, SF-36 social functioning for frail participants is reported as 59.64 (3.9), which is an infeasibly small standard deviation and could not be correct given the overall sample standard deviation. We have assumed this is 23.9.

<sup>g</sup> In Jurschik 2012, between groups p-value for SF-36 Role physical is reported in the table as 0.58 but this is contradicted in the text "the HRQoL indices ( $p < 0.001$ ), with the exception of BP [bodily pain], were higher in frail than in non-frail participants" and does not fit with the means and standard deviations reported. We have corrected this to  $p < 0.001$ .

<sup>h</sup> In Jurschik 2012, the methods imply that each SF-36 domain except bodily pain was entered into a logistic regression model (bodily pain not significantly different between groups). The only results reported from the logistic regression are for statistically significant variables. Therefore, we assumed that  $p > .05$  for each SF-36 domain except bodily pain in the logistic regression model, although this is not explicitly reported.

<sup>j</sup> In Pinto 2016, "SE" column heading is explained as "standardized estimates", but the values reported equate with standard errors when compared to the estimates and p-values, and standardised estimates are reported elsewhere in the table. Therefore, we have corrected this to standard error.

<sup>†</sup> Fit (or robust)

<sup>‡</sup> Pre-frail (or vulnerable)

<sup>§</sup> Frail (or moderate-severe frailty)

<sup>.</sup>  $p > 0.05$

<sup>\*</sup>  $p \leq 0.05$  Note that studies may not have reported specific p-values or the ranges adopted here. Therefore an indication of  $p \leq 0.05$  may not preclude  $p \leq 0.01$  or  $p \leq 0.001$  for example.

<sup>\*\*</sup>  $p \leq 0.01$

<sup>\*\*\*</sup>  $p \leq 0.001$